

Date: Sat, 22 Oct 94 04:30:16 PDT
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: List
Subject: Ham-Ant Digest V94 #352
To: Ham-Ant

Ham-Ant Digest Sat, 22 Oct 94 Volume 94 : Issue 352

Today's Topics:

7db for \$7 (2 msgs)
A3 Cushcraft in the attic
AM & FM RADIO ANTENNAE INFO--??????
Looking for RG information
More Satellite tracking for amateurs
Re : double delta loop on 2 meters
Superior coaxial line
where do I go for local antenna laws (3 msgs)

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 20 Oct 1994 22:14:50 GMT
From: hlester@nemo.as.arizona.edu (Howard Lester)
Subject: 7db for \$7

In article <Cxz3E5.J7I@srgenprp.sr.hp.com> bsplaine@dogxray.sr.hp.com (Bill Splaine) writes:

>I was listening to a conversation on 2m last nite and should have, but didn't,
>break in... they wer talking about an antenna found in a somewhat recent (?)
>publication. The article title is about a simple antenna, yagi type I think,
>that is supposed to be pretty good and only \$7 (less, I guess w/ good junk
>box).... Has anyone else seen this article? Where was it?

The article was for a 3-el 2m beam, and was in either the April or May 1993
QST. Unfortunately the text and the photo have some reversal; offhand I don't
recall what it is, though I may have it at home. I built one, and I find it to

Howard Lester KE7QJ

Bill Splaine (bsplaine@dogxray.sr.hp.com) wrote:
: I was listening to a conversation on 2m last nite and should have, but didn't,
: break in... they wer talking about an antenna found in a somewhat recent (?)
: publication. The article title is about a simple antenna, yagi type I think,
: that is supposed to be pretty good and only \$7 (less, I guess w/ good junk
: box).... Has anyone else seen this article? Where was it?

Bill

[illegible]

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>  
>JairoE@aol.com wrote:  
>: I just bought a new house and no antennas are allowed in the area. I have a  
>: Cushcraft A3, Does anybody have any experience using this antenna inside the  
>: attic? and How can I ground the antenna?  
>Bigger question, how can you turn it?
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Well I have about 7 or 8 antennas up in my attic. All are homebrewed to accommodate them in the space available. They work reasonably well. they range from 1/4 ground planes for 70cm to dualband J-Poles to a 40 meter loop and an 80 meter antenna.

You will have to start scouring the ham mags for articles for antenna disabled hams like us. It is really fun to find some of the solutions.

If your antenna will fit in the attic and you do not have a metal roof, it will work. If you are running an amp on hf, I would suggest you sell it and buy another rig or computer instead.

Your antenna can turn around if there is space. If not either you will have to point it and leave it or As for the ground, I assume that the ground is pretty far away. There is probably no ideal solution for the grounding problem. You could ground it to the water pipes (check to see if the pipes are metal all the way to the ground; if it's a new development there may be pvc pipes), or run a ground wire to the ground.

You might also try some novel vertical antenna ideas. I built a top loaded 80 meter vertical, with pvc pipe and wire, and hung it in a tree. Told the nosey neighbors that it was a bird feeder. I also put up a line wire (22 ga magnet wire) through the trees without anyone's problem. Told my adjacent neighbor that it was a new security system designed for my house. He bought it.

Let us know how you make out.

Bob Bennett
kf8ph@n8apu.#neoh.oh.edu

Date: 22 Oct 94 04:28:19 CST
From: turk@uwplatt.edu
Subject: AM & FM RADIO ANTENNAE INFO--??????

Looking for plans to build highly directional/whatever works best antennae for commercial AM radio. Any info out there?

Also, how about a nice little antenna for FM commercial band?

Date: 21 Oct 1994 16:49:34 GMT
From: morawski@starbase.starbase.mitre.org (Paul Morawski)
Subject: Looking for RG information

I believe the ARRL Antenna handbook has a 1-page table with

about 40 types of coax listed.

Paul Morawski, AA3DD
morawski@ai.mitre.org

Date: 21 Oct 1994 18:29:02 GMT
From: caralt@gaig.upc.es (Jordi Caralt Barba)
Subject: More Satellite tracking for amateurs

Subject: More Satellite tracking for amateurs
Newsgroups: rec.radio.amateur.space
Organization: TSC Dept., U. Politecnica de Catalunya.
Summary:
Keywords:

I am gratefully surprised by all the interest showed through E-mail by this project. In response to all the people that required more information I would like to extend myself a bit further over the Static Satellite Tracking Device.

The system consists in a planar array of 19 elements. The disposition is crucial because of the frequency band I'm considering: UHF. By crucial I mean that a minute change in any of the describing factors of the array could ruin the beam shape and thus its directivity. This consideration is a hard limiter because it considerably reduces the number of possible configurations. After a long period of tests and computer simulation I have decided that the best configuration is hexagonal, with all the elements spaced about half wavelength (this "about" is specially tricky) filling the hexagon in a triangular lattice. Many other configurations were considered (circular, square, linear, etc) but none proved to be so efficient in terms of directivity versus beam direction.

The next step is the control of the beam. We must take into account that most amateur satellites cross the sky in few minutes. Thus, an easy and fast control system must be used. Because I wanted the array to be totally static, the only way to move the beam is to gradually change the elements phase, as widely known. Using a small algorism I can find the adequate phase for each element and thus, direct the beam towards the place desired (that is, where the satellite is).

Another important decision to take is what radiating elements should be considered. As you may well know, most satellites transmit with circular polarisation: that is because at this frequencies is not possible to use linear polarisation because of Faraday's Rotation. So, we must find an element that, radiating together with the rest of the elements of the array, the transmitting-receiving electric field be circular polarised (the sense of rotation CW or CCW is also to be considered). I have carried out several computer simulations because

I wanted to study the change in polarisation of the electro-magnetic field due too the changes of direction. You all know about this: imagine a radiating loop placed in the XY plane. The polarisation in the z-axis (elevation=90 degrees) is circular (CW or CCW depending on the sense of the feeding current). But as you decrease elevation, polarisation is no longer circular but elliptic. So, if the satellite is transmitting circular we get signal loss, depending on the excentricity of the ellipse. I've concluded that the best option is to use crossed half wave dipoles fed by equal current amplitude but a phase shift of 90 degrees to obtain circular polarisation. Computer simulation showed that we can get almost 16 dB of directivity (gain) at elevation angles of 30 degrees. This means that the array can track satellites in a range of 120 degrees, which I thing is quite remarkable. If we can accept a loss of 3 dB the range increases to 140 degrees. At present, I'm working on the design of the RF part. Things to solve are (suggestions will be welcome):

1. Normally arrays have much noise problems than other devices. Fortunately I found an article containing some solutions, but eventhough we must use a pre-amp for each element. This amplifier has to have a good noise figure (and has to be cheap too!). I've been searching quite thoroughly but I can't find a suitable transistor (Phillips, Siemens, Advantek, etc).

2. The usage of a pre-amp implies a switching device that differenciates th transmitting and the receiving. I would like to use an electronic device if possible, but a mechanic one should prove fine provided is easy to switch.

3. Phase shifters are made of lines of different lengths. The appropriate one is selected by diodes, depending of the phase the radiating element has to have. Because we are working with RF signals, the parasite condenser must be very low. PIN diodes have very low values, but are difficult to find.

I would also thank anyboody that could give information on:

4. Is there any phase shifter in chip?
5. Is there anybody who knows something about high directivity planar arrays?
Am I the first to attempt doing such a device?
6. If you are an Amateur Satellite operator, I'll be delighted to know something about the most usual problems you have to cope with.

Yours faithfully

Date: 21 Oct 1994 09:33:20 GMT
From: ftronel@ens-lyon.fr (Frederic Tronel)
Subject: Re : double delta loop on 2 meters

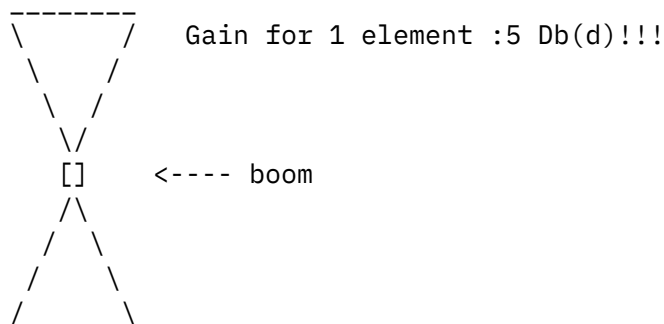
I've built a double delta loop antenna ,after I've read an article on a french

review.

The original text has been written by G4ZU Dick.

Here's a description of the antenna :

(one element)



According the author :

.On the 10 meters band with 2*2 elements :

(Computered) Gain : 10 Db(d)

Widthband : 1 Mhz

My own experience :

.On the the 2 meters band with 2*6 elements :

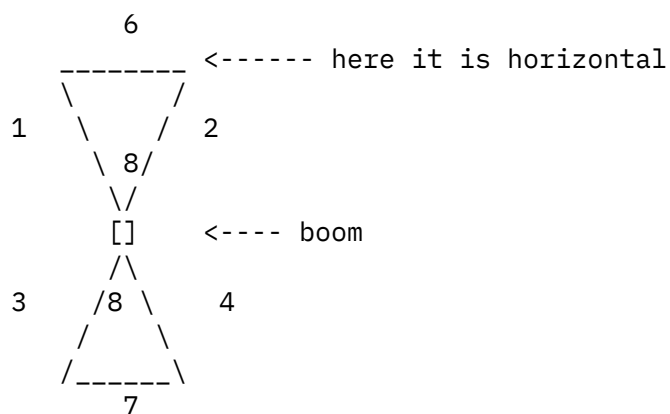
Widthband : 3~4 Mhz (TOS < 1.5)

Tos center of the band : 1~1.1

Important gain

Fed by two gamma match with 2 capacitors.

.polarisation depends of the position of the wire part of the antenna
i.e :



Obviously we have 1=2=3=4 and 7=6
and 8 is an angle

.measures:

.between elements 0.2 lambda (wave length)

.radiator :

.1=0.34 lambda

.6=0.32 lambda

.angle 8 =56 degrees (theoretically) ,in practice 70 degrees will be better, in order to stretch the wire part of antenna (I hope it's clear)

.reflector : +5% applied to the measures of the radiator

.directors : -5% applied to the measures of the last director

.feeding : 2 gammas match with 2 capacitors placed on (1 and 3) or (2 and 4).

If you have informations about such antenna ,or if you want further info ,my mail:

ftronel@ens.ens-lyon.fr

73's from F1SDZ (Fred)

Date: Thu, 20 Oct 1994 19:08:54 GMT
From: n4zr@netcom.com (Peter G. Smith)
Subject: Superior coaxial line

Except that you also need to factor in frequency. This judgment is true below 30 MHz, but diminishingly so above that - and my guess is that the loss becomes prohibitive at 432 and above.

73, Pete N4ZR n4zr@netcom.com

--

73, Pete

N4ZR@netcom.com

"Better, faster,cheaper -- choose any two"

Date: 21 Oct 1994 06:52:13 -0400
From: jeffp@access3.digex.net (Jeff Poretsky)
Subject: where do I go for local antenna laws

Hoping for some help:

I Don't want to deal with a runaround with my community.

Which Municipal office do I contact to find out about antenna laws?

Thanks

n2top

Date: Fri, 21 Oct 1994 15:56:52 GMT
From: seraфин@spdc.ti.com (Mike Serafin)
Subject: where do I go for local antenna laws

Michael A McCarthy (wa1uar@world.std.com) wrote:
: Jeff Poretsky (jeffp@access3.digex.net) wrote:
: : Hoping for some help:

: : I Don't want to deal with a runaround with my community.
: : Which Municipal office do I contact to find out about antenna
: : laws?

: Most likely, the building inspector's office.

Either there, or go to your local library and ask the reference librarian to see a copy of the city code. I usually look up the available info in the code book first, then I know exactly what it says and doesn't say. Typically the code lists only height and setback requirements. Specific construction requirements are usually referenced to the NEC and UBC. This is where the building inspection office comes in handy, at least in my community, they have spec sheets available that detail minimum construction standards for a particular project.

Mike
KC5GRW

Date: Fri, 21 Oct 1994 14:41:22 GMT
From: wa1uar@world.std.com (Michael A McCarthy)
Subject: where do I go for local antenna laws

Jeff Poretsky (jeffp@access3.digex.net) wrote:
: Hoping for some help:

: I Don't want to deal with a runaround with my community.
: Which Municipal office do I contact to find out about antenna
: laws?

Most likely, the building inspector's office.

--

===== Give every man his Dew =====

--... -- Michael A. McCarthy
Everest Engineering Corp., Consultants, 4 Barnes Circle, Marlborough, MA 01752
Voice (508) 460-6737 - E-mail to wa1uar@world.std.com

Date: 21 Oct 1994 13:59:00 GMT
From: jayk@fc.hp.com (Jay Kesterson K0GU)

References<385jtc\$84g@usenet.INS.CWRU.Edu> <hamilton.782667255@BIX.com>,
<CxzyA1.B2u@world.std.com>
Reply-To: jayk@fc.hp.com
Subject: Re: Best wire for dipoles?

: Most normal PVC insulation will melt at high power levels.....
: as long as you don't mind the
: insulation melting off the first time you fire it up with 1.5KW.

????? I use typical hardware store #14 insulated copper wire for my
dipoles and inverted L antennas. The insulation is still fine after a
few years of my Alpha 76PA driving 1.5KW into the antennas.

73, Jay K0GU jayk@fc.hp.com

End of Ham-Ant Digest V94 #352
